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Disability and Labour Market Outcomes

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Part I (“one-pager”)

Title: Disability and Labour Market Outcomes

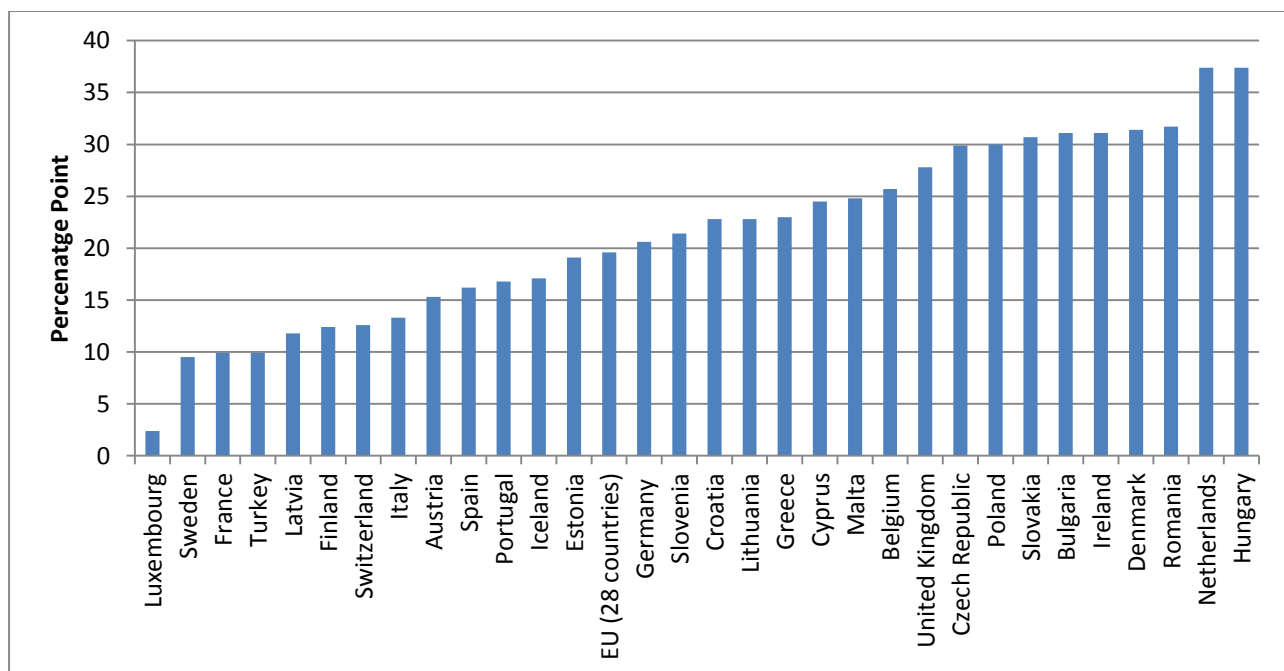
Teaser: Disability is consistently associated with labour market disadvantage but identifying the reasons for this is complex

Keywords: Disability, Discrimination, Employment, Earnings.

Elevator pitch: In Europe about one in eight people of working age report disability, that is, the presence of a long-term limiting health condition. Further, despite the introduction of a range of legislative and policy initiatives designed to eliminate discrimination and facilitate retention of and entry into work, disability is associated with substantial and enduring employment disadvantage. Identifying the reasons for this is complex but is critical to identify effective policy solutions which reduce the social and economic cost of disability disadvantage.

Graphical Abstract:

Figure 1. Gap in the employment rate between those who do and do not report disability (aged 15-64)



Source: Eurostat: The European Union Labour Force Survey (EU-LFS) ad hoc module on the employment of disabled people, 2011. Disability is defined as having long-standing difficulties in basic activities.

Key findings

| Pros (max. 5) | Cons (max. 5) |
|---|---|
| + There is growing international evidence based on cross sectional, longitudinal and matched employee-employer survey data on the labour market experience of disabled individuals. | - There are well established limitations of using self-reported information on disability status from survey data. |
| + Part of the raw gaps in labour market indicators by disability are explained by factors other than disability, such as age and educational attainment. | - There is consistent evidence across industrialised countries that disability is associated with substantial labour market disadvantage, particularly in terms of employment. |
| + Longitudinal evidence highlights that for many individuals who experience disability onset it is not permanent. | - Longitudinal evidence which examines individuals before, during and after disability provides greater evidence of a causal influence of disability on labour market outcomes. |
| | - Disability may affect productivity in work and preferences for work making it particularly difficult to identify discrimination. |
| | - There is a lack of consensus on what works in terms of designing effective policy solutions. |

Author's main message

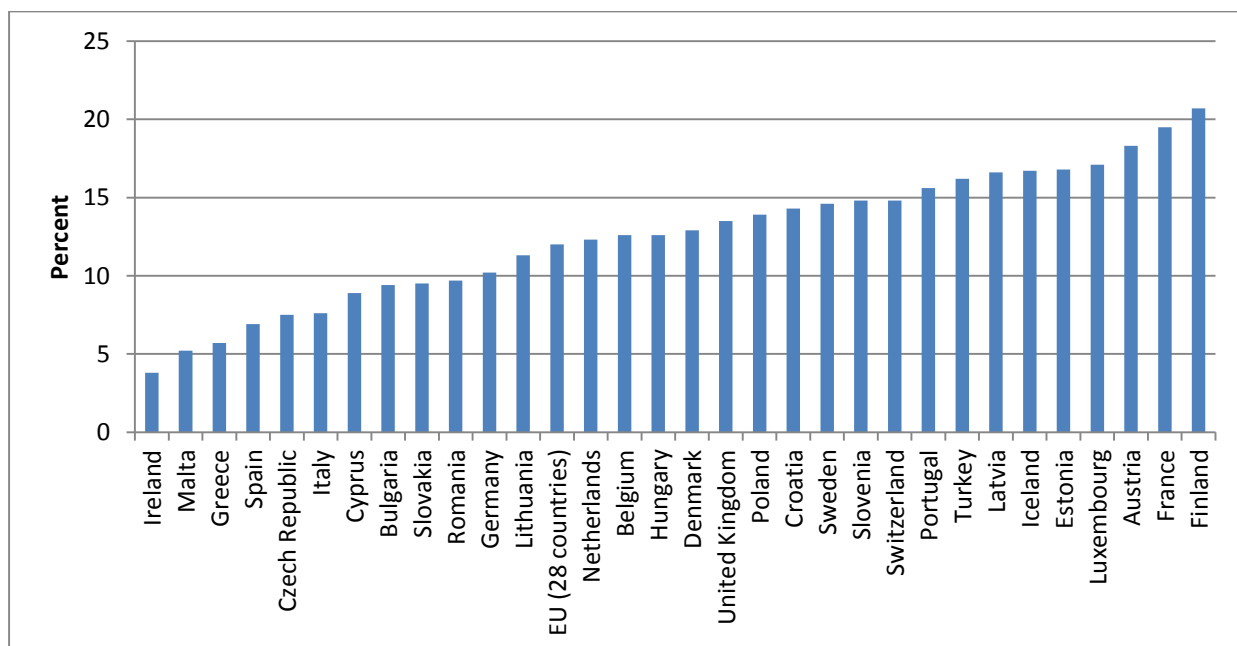
The prevalence of disability, combined with its substantial labour market disadvantage, particularly in employment, makes the design of effective policy critical in reducing its social and economic consequences. Identifying reasons for this disadvantage is, however, complicated by difficulties in measuring disability and distinguishing its influence on productivity and preferences for work, including those arising from eligibility for disability benefits, from discrimination. Recognising that the experience of disability varies by type, severity and duration may nevertheless facilitate more tailored policy support.

Part II

Motivation

Across European countries about one in eight working-age individuals report disability as defined by a long-term health problem (at least 6 months) and a basic activity limitation (see The Definition and Measurement of Disability) and, in countries such as France and Finland, this rises to one in five (see Figure 2). There is also widespread evidence of a substantial and enduring disability employment gap, which refers to the percentage point difference in the employment rate between those who do and do not report disability. When disability is defined as limitations in basic activities the average employment gap across Europe is about 20 percentage points reflecting an employment rate among disabled individuals of 47% compared to 67% among those not disabled. As shown in Figure 1 the gap varies between about 10 percentage points in Sweden and France but rises to nearer 40 percentage points in countries such as the Netherlands and Hungary. There is an important link between the prevalence rate and associated employment disadvantage, with tighter definitions of disability, which typically exclude those with milder disability, accompanied by more substantial estimates of disadvantage. Indeed, in Europe, the corresponding employment gap relating to disability defined as limitations with work is larger at nearly 30 percentage points.

Figure 2. Percentage of the population (aged 15-64) who report a long-term health problem and difficulties in basic activities



Source: Eurostat: The EU-LFS ad hoc module on the employment of disabled people, 2011.

Discussion of pros and cons

Measuring Disability

As recognised above, while the availability of comparable international survey data such as that presented in Figures 1 and 2 appear to provide opportunities for cross-country analysis there are important measurement issues involved. The magnitude and nature of international variation, particularly in terms of disability prevalence, raise important concerns as to the extent to which self-reported disability, which depends on the social, economic and policy context, is comparable across countries [1]. Indeed, the incentives to self-report disability may depend on social acceptability and financial implications which may relate to country specific institutional features, such as the welfare system and anti-discrimination legislation. Nevertheless, some common patterns have been found to emerge: rates of disability are typically higher in Northern than in Southern Europe, increase with age and decrease among individuals with more formal educational qualifications. Across the EU, for example, the percentage of the population reporting disability among those aged 55-64 (26%) is eight times that among those aged 15-24 (3%).

The majority of evidence in this paper relies on these self-reported measures of disability which are now routinely available from international survey data. They have, however, been subject to a number of criticisms in this context (see The Definition and Measurement of Disability) and, studies have sought to explore their validity using more objective information. Objective measures of health are, however, also likely to suffer from measurement error, given the concept of disability, which relates to activity restrictions arising from functional limitations, will itself depend on the social and economic environment. As such, rather than substitute self-reported information studies have tended to examine how self-reporting disability varies compared to a measure of ‘true’ disability, for example, constructed from objective health measures or receipt of disability benefits. The evidence is, however, mixed and inconclusive with studies finding evidence both for and against the use of self-reported disability.

The analysis of a subset of disabled individuals, who are in receipt of disability welfare payments, often identified using administrative records, forms a largely separate strand of literature. While this is arguably a more objective measure of disability, in the sense that recipients typically have to meet specified medical criteria, eligibility for, and therefore receipt of, depend on the nature of the scheme. Further, despite institutional differences, the majority of schemes are designed as income

replacement and therefore tend to impose substantial restrictions on ‘permitted employment’ by design, limiting the usefulness of disability defined in relation to welfare benefit in analysing individual labour market outcomes. Nevertheless, cross-country variation in receipt of disability benefits among older workers, which substantially exceeds variation in indicators of objective health, is sufficient to suggest disability welfare forms a route into early retirement in some countries. Moreover, country specific studies, such as those based on changing benefit regimes, provide important evidence of a causal relationship between the level of disability benefits and non-participation in the labour market. As such, the design of the disability welfare system is undoubtedly an important contributory factor to the broader self-reported disability employment gap.

The nature of disability welfare schemes have attracted increasing attention, at least partially due to significant growth in disability benefit caseloads and the associated financial pressure, particularly in parts of Northern Europe, the US, UK and Australia. This growth has occurred over a period where objective measures of health have generally been improving and dominant explanations for growth instead relate to the design of the scheme (relaxation in eligibility requirements and increasing relative generosity) as well as changes in demographics, female labour force participation and the reduction in demand for low skilled workers (see [2] for example). Recent reforms of disability benefit systems have tended to contain active strategies to encourage re-engagement with work and therefore enhance the (typically low) rate of exit from disability benefits, and tighter medical (amongst other) eligibility criteria to reduce the inflow and better target support to those unable to work. While there is recognition of the difficulty associated with attempting to achieve two conflicting goals, that is, providing financial support to those unable to work while at the same time encouraging those who can to retain or re-engage employment, there has been some recent success, at least in terms of reducing caseloads, in the Netherlands particularly but also in the UK. Nevertheless in understanding the broader disability employment gap, future work needs to examine the extent to which such reforms have led to continued labour market attachment (or reattachment) rather than benefit displacement.

Disability, Employment and Earnings

The size of the employment gap (see Figure 1), combined with its persistence over time and presence across countries has motivated a body of evidence which has attempted to identify the drivers of disability labour market inequality and monitor its trend over time. The latter in particular has been used to assess the effectiveness of major changes in policy and legislation. This evidence frequently simultaneously considers hourly labour market earnings, where the disability gap is significant but often more modest, at between 10 and 20 percent.

Explanations for the disability-related employment gap vary and include pre-existing disadvantage, changes in capacity for, and ability to, work and changes in preferences for work such as those arising from changes in the value of leisure and/or eligibility for welfare support. They also include reverse causality, including justification bias, that is, the incentive for those out of work to legitimise this by subsequently reporting disability (see The Definition and Measurement of Disability). A key issue has, however, been the influence of discrimination or unequal treatment by employers arising from prejudice or imperfect information (whereby the employer uses disability as a signal of low productivity). Studies have attempted to distinguish discrimination from the disadvantage associated with other personal and work-related characteristics. This type of analysis asks to what extent gaps in the raw data reflect disability per se rather than other factors, such as age and education, which are correlated with disability. A substantial proportion of both the employment and earnings gaps are found to relate to disability, or what is often referred to as being unexplained by the other factors in the model. In the UK, for example, about 75% and between 50-75% of the employment and earnings gap respectively is found to be unexplained [3,4].

One main limitation of this type of analysis is that it is difficult to control for other unobserved factors such as the impact of disability on productivity at work or preferences to work. As such, the unexplained gap is almost certainly an overestimate of disability discrimination. Studies have attempted to tackle this issue by controlling for functional limitations and/or using the definition of disability to identify groups of disabled individuals who are more or less likely to experience discrimination or productivity reductions at work. These studies tend to find discrimination plays a more minor role [3,4,5]. Nevertheless, contributions using an alternative correspondence study based approach, where otherwise identical CV's are sent to employers in response to a job advert find that rates of invitation to interview are significantly lower for disabled relative to non-disabled applicants consistent with employer discrimination.

Studies have sought to evaluate the impact of major changes in legislation which have made discrimination against disabled individuals unlawful in several countries, including the 1990 Americans with Disabilities Act (ADA) (and the UK equivalent, the 1995 Disability Discrimination Act (DDA)), by comparing the outcomes of disabled and non-disabled individual's pre and post the introduction of legislation. Both pieces of legislation contain two main components. An antidiscrimination element makes disability discrimination unlawful and the reasonable adjustment element requires employers to make changes to the workplace and work practices to prevent a disabled person being disadvantaged. While the threat of legal action related to disability discrimination on hiring would be expected to increase the employment of disabled individuals the anticipated increase in firing costs arising from wrongful termination combined with costs of accommodation act in the opposite direction. It is the latter which are anticipated to dominate and, by increasing the expected costs on employers of hiring disabled individuals, is predicted to reduce demand for disabled workers [6].

Overall, there is no evidence of positive employment effects arising from the introduction of such legislation [6,7]. Moreover, that in the US, negative employment effects have been found to vary by firm size and by state variation in disability discrimination charges is consistent with an adverse influence of the ADA [6]. Indeed, when using variation in pre-existing legislation between US states there is preliminary evidence that it was the introduction of the reasonable accommodation element of the legislation that had short-run unintended negative consequences [8]. Nevertheless, these findings have not gone undisputed, with factors other than the ADA, including the economic cycle and changes in the disability welfare regime put forward as alternative explanations for the decline in the employment rate among disabled individuals in the US.

Disability and Disadvantage in Work

More recently studies have considered a broader range of labour market indicators, including in relation to hours of work and the nature of employment. The concentration of disabled workers in part-time and self-employment raise questions as to the extent this reflects push factors such as inequality of treatment, or pull factors including the ability to accommodate disability in work. Such analysis has also started to consider the experience of work using subjective measures relating to skill utilisation, job satisfaction, perceptions of managers and employee commitment. Relative to their non-disabled counterparts, disabled workers tend to report a more negative experience across a

range of in-work outcomes and this is evident across several countries including the US, Spain, UK and Australia (see [9] for example). Further, this is not explained by differences in personal characteristics or more objective work-related characteristics, such as hours or occupation, and therefore exists, on average, between comparable disabled and non-disabled workers in comparable jobs. Such differences in work-related wellbeing are consistent with higher rates of reporting of bullying and harassment from employers and co-workers among disabled relative to non-disabled employees in the UK. An interesting question, which can be explored using matched employee-employer data, is the role of the employer and influence of specific workplace policies and practices on this disability disadvantage. While these issues remain underexplored, recent US evidence finds that the disability gap in perceptions disappears in workplaces which are viewed as most fair among all employees pointing to the importance of ‘corporate culture’ [9]. Understanding the work-related well-being of disabled workers is not only important in its own right but because of its likely contribution to the employment and earnings gaps via the impact on the recruitment, retention and productivity of disabled individuals.

Longitudinal Evidence

A major criticism of the literature has been a focus on cross sectional data and associations between variables rather than causal relationships. More recently longitudinal evidence, which is able exploit the dynamic nature of disability to trace the same individual pre-onset, during onset and post-onset, has been used to identify the disadvantage associated with disability measured relative to the same individual pre-onset, rather than a similar non-disabled individual, who may differ in a range of unobserved ways. Amongst other things, such analysis is able to separate the disadvantage associated with disability onset from pre-existing disadvantage and is able to use the timing of disability relative to disadvantage to rule out reverse causality. Longitudinal evidence has one further advantage in that it is able to identify and distinguish between disadvantage associated with different dynamic patterns of disability, particularly the duration of disability. Indeed, analysis of the dynamics of disability highlights that for many disability is not permanent.

Although much of the existing longitudinal evidence is based on US data there have also been important recent contributions for Germany, the UK and Australia. Several key findings emerge from this literature. First, there is evidence that disability onset is associated with employment and earnings disadvantage relative to the same individual pre-onset, consistent with a causal explanation. Further, the dynamics of disability are important: those with chronic disability, which

is defined to persist post-onset, experience greater disadvantage at onset and, in contrast to arguments that individuals adapt, this disadvantage is exacerbated post-onset. Finally, self-reported severity is a key driver of the magnitude of disadvantage. For example, those who report chronic severe disability experience more than 3.5 times the reduction in annual working hours 10 years post-onset [10]. Further, this type of framework has been used to consider the broader impact of disability on wellbeing, recognising that the implications of changes in individual labour market status may have a less pronounced impact on household income and/or consumption when there is support within the household or from the government such as via disability benefit income. Indeed, recent evidence relating to the negative impact of disability onset on subjective self-reported life satisfaction raises interesting questions for policymakers about how disadvantage should be measured.

The focus on the dynamics of disability has also raised questions as to the influence of the timing of onset [11]. An important distinction is made between those who are disabled at birth or during childhood relative to those who have already entered the labour market because the barriers to employment may be expected to differ. Among the first group, disability may affect the accumulation of human capital and will precede entry into the labour market, whereas human capital is likely to be largely determined among the latter and the key issue may instead be the retention of employment [12]. Indeed, in [11] a distinction is made between general human capital which is valued equally for disabled and non-disabled individuals, healthy human capital which is valued only for non-disabled individuals and disabled human capital which is valued for those with disability. If healthy human capital increases with age, those with age-onset disability will face more severe disadvantage at onset. Further, those who are disabled at a younger age should have more incentive to invest in disability specific human capital which should reduce the disadvantage experienced over time. Consistent with this, the impact of disability has been found to be greater among older onset groups across several countries, including the US, UK and Australia.

Limitations and gaps

Relative to research on some other minority groups evidence relating to disability is scarce. One reason for this is that disability is difficult to define and measure and these issues are exacerbated in comparisons across time or countries. Indeed, even within a country, relatively small changes in the order and nature of survey questions used to identify disability can have important consequences for the prevalence of disability. Future research could usefully explore the dynamic relationship

between (1) self-reported disability and more objective measures of health and (2) self-reported disability and receipt of disability benefits, possibly by linking survey information to administrative data. This may shed light on important issues such as for whom and at what point health conditions become disabling and lead to welfare support and, who is most likely to exit. In doing so, it may provide information from which to develop proactive policy measures which prevent onset and support exit.

Disability, and the disadvantage associated with disability, is typically considered at the level of the individual but useful insights may be afforded by considering the household both in terms of patterns of onset but also in terms of the wider impact of disability. In terms of the former it would be useful to consider the intergenerational transmission of disability as well as the clustering across households. In a similar vein, studies could further consider the household implications of disability onset, such as the impact on spousal labour supply and/or workless households.

Future research should further acknowledge that the influence of disability will depend on both the characteristics of disability and, the characteristics and circumstances of the individual. In this respect there are gaps in knowledge in respect of the role of the age of onset and particularly the influence of disability on key events such as (1) retaining work, where there is a lack of evidence on the role of workplace adjustment and past labour market experience, and (2) the school to work transition. Indeed, the concentration of young (15-24 year old) disabled individuals ‘Not in Employment, Education or Training’ (24%), a rate which, in Europe, is twice that among non-disabled individuals (12%), may suggest an important role for early policy intervention. More detailed information on the nature of disability, including duration and severity is often missing from survey data typically used to analyse labour market outcomes. The simple binary measure of disability, while having the advantage of simplicity, ignores this substantial within-group heterogeneity. Indeed, there is a clear need for evidence to routinely distinguish between conditions, particularly physical and mental health problems, given that the latter is associated with more severe disadvantage [4] and has been linked to rising disability welfare claimants.

In the current context, perhaps the most important omission from the literature is a clear picture of what works in terms of policy. The lack of consensus in part reflects the fragmented nature of the evidence, which often focuses on individual schemes including quotas, sheltered employment, wage subsidies, welfare reform and employment support, which are a feature of particular institutional

environments and where the results are not easily generalisable. Where there has been deeper investigation, such as in terms of evaluation of legislation, the absence of a positive effect simply demonstrates how complex and difficult the challenge is for policy.

Summary and policy advice

Descriptive evidence provides insights into the prevalence of disability and the scale of the associated labour market disadvantage. It is, however, important to recognise that, since disabled individuals are often disadvantaged pre-onset, such comparisons may overstate the true disadvantage associated with disability. Identifying the causal influence of disability is difficult but the existing longitudinal evidence points to a negative onset effect which, for those with severe and persistent disability, is exacerbated over time [10]. More positively, longitudinal analysis also identifies that disability onset is not necessarily permanent and that the disadvantage associated with temporary disability is less severe.

Typically less than half of the raw cross sectional gaps in employment or earnings associated with disability are explained by other observable factors, such as education. The reasons for the residual disadvantage, however, remain contested, with the (unobserved) influence of disability on productivity and preferences for work difficult to separate from discrimination, resulting in a risk of the latter being overestimated. Nevertheless, despite the introduction of legislation which prohibits disability discrimination in countries including the UK and the US, there has been little evidence this has led to a narrowing of the disability employment gap.

Given the lack of a consensus about what works in terms of policy, it is perhaps worth noting that disability is heterogeneous and that differences in the type, severity and chronicity of disability are fundamental to the pattern of disadvantage and therefore in the design of effective support. Indeed, recent studies highlight the importance of a more tailored policy response and, in particular, matching individual job demands to functional limitations to reduce extent of productivity effects in work [13]. Consistent with this, there is increasing recognition of the importance of the employer and effective occupational health in supporting flexibility and adjustments to work in order to enable employees retain, and/or reengage with, work. The government also has an important role in this regard, particularly in designing welfare systems that provide support to those *in work* and thereby provide financial incentives for individuals to remain in work, or return to work, when they are able.

Background information:

The Definition and Measurement of Disability

Evidence relating to the labour market experience of disability is frequently based on survey data where individuals are classified as self-reporting disability on the basis of their responses to a series of survey questions. Disability is usually defined as a long-term limiting health condition. Although precise definitions vary, the main measures typically define long-term as a period of 6 or 12 months and relate to limitations in terms of (1) daily/life activities and/or (2) work. Regardless of the precise definition self-reported information suffers from two main sources of bias (see Bound, 1991).

Measurement error arises because the responses are not directly comparable between individuals who are likely to have their own thresholds for reporting disability.

Justification bias arises because the incentive to report disability may depend on labour market outcomes themselves. In particular individuals who are not in employment may use disability to justify non-participation.

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Competing interests:

The IZA World of Labor project is committed to the *IZA Guiding Principles of Research Integrity*. The author declares to have observed these principles.

Reference list:

Further reading:

OECD (2010). *Sickness, Disability and Work: Breaking the Barriers*. Paris: Organisation for Economic Co-operation and Development.

Schur, L., Kruse, D. and Blanck, P. (2013). *People with Disabilities: Sidelined or Mainstreamed?* New York: Cambridge University Press.

Key references:

- [1] Kapteyn A., Smith J.P. and Van Soest A., (2007) Vignettes and self reports of work disability in the United States and the Netherlands, *American Economic Review*, 97(1), 431-473.
- [2] Autor, D. H. and Duggan, M. G. (2006) The growth in the Social Security disability rolls: A fiscal crisis unfolding, *Journal of Economic Perspectives*, 20, 71–96.
- [3] Jones, M. (2006). Is there employment discrimination against the disabled? *Economics Letters*, 92, 32-37.
- [4] Jones, M. K., Latreille, P. L. and Sloane, P. J. (2006) Disability, gender and the British labour market, *Oxford Economic Papers*, 58(3), 407-459.
- [5] DeLeire T. (2001) Changes in wage discrimination against people with disabilities: 1984-93, *Journal of Human Resources*, 36, 144-58.
- [6] Acemoglu, D. and Angrist, J.D. (2001) Consequence of employment protection? The case of the Americans with Disabilities Act, *Journal of Political Economy*, 109, 915-50.
- [7] Bell, D. and Heitmueller, A. (2009) The Disability Discrimination Act in the UK: Helping or hindering employment among the disabled?, *Journal of Health Economics*, 28(2), 465-480.
- [8] Jolls, C. and Prescott, J. J. (2004) Disaggregating employment protection: The case of disability discrimination, NBER Working Paper 10740.
- [9] Schur, L., Kruse, D., Blasi, J. and Blanck, P. (2009) Is disability disabling in all workplaces? Workplace disparities and corporate culture, *Industrial Relations*, 48(3), 381-410.
- [10] Meyer, B. D. and Mok, W. K. C. (2013) Disability, earnings, income and consumption, *mimeo*, University of Chicago.
- [11] Charles, K. K. (2003) The longitudinal structure of earnings losses among work-limited disabled workers, *Journal of Human Resources*, 38(3), 618-646.
- [12] Baldwin, M. and Johnson, W. G. (2001) Dispelling the myths about work disability, in *New Approaches to Disability in the Workplace* (Eds) T. Thomason, J. F. Burton and D. Hyatt, 1998 Industrial Relations Research Association Series, Madison, WI, 39–62.
- [13] Baldwin, M. and Choe, C. (2014) Wage discrimination against workers with sensory disabilities, *Industrial Relations*, 53, 101-124.

Additional references:

- Baldwin, M. and Johnson, W. G. (1994) Labor market discrimination against men with disabilities, *Journal of Human Resources*, 29(1), 1-19.
- Banks, J., Blundell, R. and Emmerson, C. (2015) Disability benefit receipt and reform: reconciling trends in the United Kingdom, *Journal of Economic Perspectives*, 29(2), 173-190.
- Beegle, K. and Stock, A. (2003) The labour market effects of Disability Discrimination Laws, *Journal of Human Resources*, XXXVIII, 806-859.
- Benitez-Silva, H., Buchinsky, M., Chan, H. M., Cheidvasser S. and Rust, J. (2004) How large is the bias in self-reported disability?, *Journal of Applied Econometrics*, 19(6), 649-670.
- Bound, J. (1991) Self-reported versus objective measures of health in retirement models, *Journal of Human Resources*, 26(1), 106-138.
- DeLeire, T. (2000) The wage and employment effects of the Americans with Disabilities Act, *Journal of Human Resources*, 35, 693-715.
- Eurostat (2015) Employment of disabled people: Statistical analysis of the 2011 Labour Force Survey ad hoc module, Eurostat Statistical Working Papers.
- Fevre, R., Nichols, T., Prior, G. and Rutherford, I. (2009) Fair Treatment at Work Report: findings from the 2008 survey, London: Department for Business, Innovation and Skills.
- Johnson, W. G. and Lambrinos, J. (1985) Wage discrimination against handicapped men and women, *The Journal of Human Resources*, 20(2), 264-277.
- Jolly N. A. (2013) The impact of work-limiting disabilities on earnings and income mobility, *Applied Economics*, 45(36), 5104-5118.
- Jones, M. (2011) Disability, employment and earnings: an examination of heterogeneity, *Applied Economics*, 43, 1001-1017.
- Jones, M. K. (2016). Disability and perceptions of work and management. Forthcoming *British Journal of Industrial Relations*.
- Jones, M. K. and Sloane, P. (2012) Disability and Social Exclusion in *Social Exclusion: Short and Long Term Causes and Consequences*, edited by G. Parodi and D. Sciulli. AIEL Series in Labour Economics, Physica-Verlag. A Springer Company.
- Koning, P. and Lindeboom, M. (2015) The rise and fall of disability insurance enrolment in the Netherlands, *Journal of Economic Perspectives*, 29(2), 151-172.
- Kruse, D. and Schur, L. (2003) Employment of people with disabilities following the ADA, *Industrial Relations*, 42, 31-64.
- Liebman, J. B. (2015) Understanding the increase in Disability Insurance Benefit Receipt in the United States, *Journal of Economic Perspectives*, 29(2), 123-150.
- Lopez Frutos, E. and Vall Castello, J. (2015) Equal health, equal work? The role of disability benefits in employment after controlling for health status. *The European Journal of Health Economics*, 16 (3), 329-340.

- Loprest, P. and Maag, E. (2007) The relationship between early disability onset and education and employment, *Journal of Vocational Rehabilitation*, 26, 49–62.
- Mok, W. K. C., Meyer, B. D., Charles, K.K. and Achen, A. C. (2008) A note on ‘the longitudinal structure of earnings losses among work-limited disabled workers’, *Journal of Human Resources*, 43(3), 721-728.
- Oyer, P. and Schaeffer, S. (2002) Sorting, quotas, and the Civil Rights Act on 1991: Who hires when it’s hard to fire? *Journal of Law and Economics*, 45(1), 41-68.
- Oswald, A. J. and Powdthavee, N. (2008) Does happiness adapt? A longitudinal study of disability with implications for economists and judges, *Journal of Public Economics*, 92 (5/6), 1061-1077.
- Pagán, R. and Malo, M. A. (2009) Job satisfaction and disability: lower expectations about jobs or a matter of health? *Spanish Economic Review*, 11, 51–74.
- Powdthavee, N. (2009) What happens to people before and after disability? Focusing effects, lead effects, and adaptation in different areas of life, *Social Science and Medicine*, 69, 1834-1844.
- Riach, P. A. and Rich, J. (2002) Field experiments of discrimination in the market place, *The Economic Journal*, 112, F480-F518.
- Schwochau, S. and Blanck, P. (2003) Does the ADA disable the disabled? More comments, *Industrial Relations*, 42(1), 67-77.
- Wilkins, R. (2004) The effects of disability on labour force status in Australia, *The Australian Economic Review*, 37, 359–82.
- Wise, D. A. (2012) Social Security Programs and Retirement around the World: Historical Trends in Mortality and Health, Employment, and Disability Insurance Participation and Reforms. NBER Conference Report.